SEQUOYAH NUCLEAR PLANT

UNITS 1 & 2

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

Supplemental Information

Second Half 1983

IE25
1/1

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

SUPPLEMENTAL INFORMATION

SECOND HALF 1983

1. Regulatory Limits

a. Fission and Activation Gases:

(1) Instantaneous - Nuclide Dependent (All Release Points)

Shield Building
Auxiliary Building
Condenser Vacuum Exhaust
Service Building

NOTE: Total plant release rate limit per nuclide are established by TVA's Health Physics Services Branch. These limits are further evaluated to each vent based on design flowrate. Technical specification will not be exceeded until the sum of individual isotope release rate per release rate limit exceed 1.0.

b. & c. Iodines and particulates, half-lives >8 days

(1) Instantaneous - Nuclide Dependent

NOTE: Total plant release rate limit per nuclide are established by TVA's Health Physics Services Branch. These limits are further evaluated to each vent based on design flowrate. Technical specification will not be exceeded until the sum of individual isotope release rate per release rate limit exceed 1.0.

d. Liquid effluent: Σ MPC $\leq$ 1.0 (ref. 10 CFR 20, Appendix B, note 3C, Table II, column 2).

e. Tritium

(1) Liquid - $\leq$ 3.0E-3 µCi/ml (ref. 10 CFR 20, Table II, column 2)

(2) Airborne - (ref. 10 CFR 20, Table II, column 1)

Shield Building	$\leq$	3.783E+03 µCi/sec
Auxiliary Building	$\leq$	2.702E+04 µCi/sec
Service Building	$\leq$	1.405E+03 µCi/sec
Condenser Vacuum Exhaust	$\leq$	6.079E+00 µCi/sec

NOTE: These limits are established by TVA's Health Physics Services Branch based on each vents design flow rate.

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

SUPPLEMENAL INFORMATION (CONTINUED)

SECOND HALF 1983

2. Maximum Permissible Concentrations

   a. Fission and Activation Gases: Not Applicable

   b. Iodines: Not Applicable

   c. Particulates, half-lives >8 days: Not Applicable

   d. Liquid effluents: sum of indv. MPC ratios ≤ 1.0
   (ref. 10 CFR 20, Appendix B, note 1)

3. Average Energy - Not Applicable

4. Measurements and Approximations of Total Radioactivity

   a., b. & c. Fission and Activation Gases, Iodines, and Particulates:

   a. Fission and Activation Gases

   Airborne effluent gaseous activity is continuously monitored and recorded. Additional grab samples from the shield, auxiliary, service and condenser vacuum exhausts are taken and analyzed at least monthly to determine the quantity of noble gas activity released for the month based on the average vent flowrates recorded for the sampling period. Also, noble gas samples are collected and evaluated for the shield and auxiliary buildings following startup, shutdown or a rated thermal power changes exceeding 15% within one hour. The vent flowrates for the shield, auxiliary, and service buildings, exhaust are determined and recorded once a shift.

   The quantity of noble gases released through the shield and auxiliary building due to purging or venting of containment and releases of waste gas decay tanks are also determined.

   The total noble gas activity released for the month is then determined by summing all of the activity released from each vent for all sampling periods, the activity released from purging or venting of containment, and the activity released from waste gas decay tank(s).

   Allowance is made for a plus or minus one sigma counting error associated with the gamma isotopic analyses.

4. Measurements and Approximations of Total Radioactivity (Continued)

b. & c. Iodines and Particulates

Iodine and particulate activity is continuously monitored and recorded. Charcoal and particulate samples are taken from the shield and auxiliary building exhausts and analyzed at least weekly to determine the total activity released from the plant based on the average vent flowrates recorded for sampling period.

Also, particulate and charcoal samples are taken from the auxiliary and shield buildings once per 24 hours for 2 days following startup, shutdown or a rated thermal power change exceeding 15% within one hour. The quantity of iodine and particulate released from each vent during each sampling period is then determined using the average vent flowrates recorded for the sampling period and activity concentration.

The vent flowrates from the shield and auxiliary buildings are recorded once a shift.

The total particulate and iodine activity released for the month is then determined by summing all of the activity released from the shield and auxiliary buildings for all sampling periods.

Allowance is made for a plus or minus one sigma counting error associated with the gamma isotopic analyses.

d. Liquid Effluents

(1) Batch - (Radwaste and Condensate Regenerants to Cooling Tower Blowdown)

Total gamma isotopic activity concentrations are determined on each batch of liquid effluent prior to release. The total curie content of a released batch is determined by summing each nuclide's concentration and multiplying by the total volume discharged. The total activity released during a month is then determined by summing the activity content of each batch discharged during the month.

(2) Continuous Releases and Periodic Continuous Releases (Condensate Regenerants, Turbine Building Sump and Steam Generator Blowdown)

Total gamma isotopic activity concentration is determined daily on a composite sample. The total curie content of the continuous release is determined daily by summing each nuclide's concentration and multiplying by the total volume discharged.

(2) Continuous Releases and Periodic Continuous Releases (Condensate Regenerants, Turbine Building Sump and Steam Generator Blowdown) (Continued)

The total activity released during the month is then determined by summing the activity content of each daily composite for month.

Allowance is made for plus or minus one sigma counting error associated with the total gamma isotopic analyses.

5. Batch

		Value		Units
		Third Quarter	Fourth Quarter	
a.	Liquid			
(1)	Number of batches released	182	173	Each
(2)	Total time period for batch releases	31,280	29,348	Minutes
(3)	Maximum time period for a batch release	275	225	Minutes
(4)	Average time period for batch releases	172	170	Minutes
(5)	Minimum time period for a batch release	70	110	Minutes
(6)	Average stream flow during periods of effluent into a flowing stream:	(a)	(a)	

(a) See Health Physics Services Branch's portion of semi-annual effluent release report.

b.	Gaseous (Continued)			
(1)	Number of batches released	137	195	Each
(2)	Total time period for batch releases	18,283	34,737	Minutes
(3)	Maximum time period for a batch release	1,440	1,785	Minutes
(4)	Average time period for batch releases	133	178	Minutes
(5)	Minimum time period for a batch release	15	2	Minutes

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

SUPPLEMENAL INFORMATION (CONTINUED)

SECOND HALF 1983

6. Abnormal Releases

a.	Liquid			
	(1) Number of Releases	0	0	
	(2) Total Activity Released	0.00E-01	0.00E-01	Ci
b.	Gaseous			
	(1) Number of Releases	0	2	
	(2) Total Activity Released	0.00E-01	5.39E+01	Ci

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

BATCH LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

RADWASTE (TO COOLING TOWER BLOWDOWN)

SECOND HALF 1983

		Unit	Third Quarter	Total % Error	Fourth Quarter	Total % Error
A.	Fission and Activation Products					
1.	Total Releases	Curies	7.86E-01	±1.0E+01	7.25E-01	±1.0E+01
2.	Average Diluted Conc. During Period of All Identified Isotopes	µCi/ml	2.58E-07		2.36E-07	
3.	Percent of Applicable Limit ($\sum_{1}^{N}$ MPC $\leq$ 1)	%	6.00E-01		7.30E-01	
B.	Tritium					
1.	Total Release	Curies	2.46E+02	±1.0E+01	1.72E+02	±1.0E+01
2.	Average Diluted Conc. During Period	µCi/ml	8.07E-05		5.60E-05	
3.	Percent of Applicable Limit (3.0E-03 µCi/ml)	%	2.69E+00		1.87E+00	
C.	Dissolved and Entrained Gases					
1.	Total Release	Curies	3.85E-01	±1.5E+01	1.42E-02	±1.5E+01
2.	Average Diluted Conc. During Period	µCi/ml	1.27E-07		4.63E-09	
3.	Percent of Applicable Limit (2.0E-04 µCi/ml)	%	6.31E-02		2.31E-03	
D.	Gross Alpha Radioactivity					
1.	Total Release	Curies	0.00E-01	±1.5E+01	0.00E-01	±1.5E+01
E.	Volume of Waste Release					
	(Before Dilution)	Liters	9.85E+06	±1.0E+01	9.24E+06	±1.0E+01
F.	Volume of Dilution Water for Period	Liters	3.04E+09	±1.0E+01	3.06E+09	±1.0E+01

NOTE: Percent of applicable limit is based on identified isotope concentration after dilution, related to their appropriate MPC concentration and sum of all the isotope fractions compared to 1.0.

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

BATCH LIQUID RELEASES

RADWASTE

SECOND HALF 1983

G. Isotope Summary	Curies	Third Quarter	Fourth Quarter
1. Strontium-89		0.00E-01	0.00E-01
2. Strontium-90		0.00E-01	0.00E-01
3. Cesium-134		6.61E-03	7.03E-04
4. Cesium-137		1.34E-02	1.79E-03
5. Iodine-131		1.22E-03	6.26E-03
6. Cobalt-58		2.90E-01	3.52E-02
7. Cobalt-60		1.23E-01	2.35E-02
8. Iron-59		5.23E-03	0.00E-01
9. Zinc-65		6.88E-04	0.00E-01
10. Manganese-54		4.76E-02	3.96E-03
11. Chromium-51		1.09E-02	8.67E-05
12. Zirconium-Niobium-95		5.24E-03	2.85E-04
13. Molybdenum-99		0.00E-01	0.00E-01
14. Technetium-99m		0.00E-01	0.00E-01
15. Barium-Lanthanum-140		0.00E-01	0.00E-01
16. Cerium-141		0.00E-01	0.00E-01
17. Sodium-24		1.70E-04	0.00E-01
18. Fluorine-18		0.00E-01	0.00E-01
Total for Period		5.04E-01	7.18E-02

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

BATCH LIQUID RELEASES

RADWASTE

SECOND HALF 1983

G. Isotope Summary	Curies	Third Quarter	Fourth Quarter
Others (Not Required for Reg. Guide 1.21)			
1. Xenon-133		3.66E-01	3.44E-03
2. Xenon-135		9.50E-03	5.97E-03
3. Iodine-133		2.97E-03	1.36E-04
4. Cesium-136		0.00E-01	0.00E-01
5. Xenon-131m		2.66E-03	0.00E-01
6. Krypton-85m		1.30E-04	1.11E-05
7. Antimony-124		1.76E-04	0.00E-01
8. Argon-41		2.46E-05	0.00E-01
9. Zirconium-97		0.00E-01	4.76E-04
10. Arsenic-74		0.00E-01	0.00E-01
11. Phosphorus-32		3.12E-02	0.00E-01
12. Iron-55		2.46E-01	0.00E-01
Others (specify)			
Cobalt-57		6.29E-04	1.23E-04
Niobium-97		1.26E-03	4.21E-07
Xenon-133m		6.29E-03	0.00E-01
Krypton-85		0.00E-01	4.82E-03
Total for Period		6.67E-01	1.50E-02

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

BATCH LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

CONDENSATE REGENERANTS
(TO TURBINE BUILDING SUMP)

SECOND HALF 1983

		Unit	Third Quarter	Total % Error	Fourth Quarter	Total % Error
A.	Fission and Activation Products					
1.	Total Releases	Curies	5.24E-02	±1.0E+01	2.05E-01	±1.0E+01
2.	Average Diluted Conc. During Period of All Identified Isotopes	µCi/ml	2.68E-07		9.44E-07	
3.	Percent of Applicable Limit ($\sum_{i=1}^{N}$ MPC $\leq$ 1)	%	1.96E+00		4.27E+00	
B.	Tritium					
1.	Total Release	Curies	1.95E+00	±1.0E+01	2.43E-01	1.0E+01
2.	Average Diluted Conc. During Period	µCi/ml	9.97E-06		1.12E-06	
3.	Percent of Applicable Limit (3.0E-03 µCi/ml)	%	3.32E-01		3.72E-02	
C.	Dissolved and Entrained Gases					
1.	Total Release	Curies	1.61E-04	±1.5E+01	0.00E-01	±1.5E+01
2.	Average Diluted Conc. During Period	µCi/ml	8.24E-10		0.00E-01	
3.	Percent of Applicable Limit (2.0E-04 µCi/ml)	%	4.12E-04		0.00E-01	
D.	Gross Alpha Radioactivity					
1.	Total Release	Curies	0.00E-01	±1.5E+01	0.00E-01	±1.5E+01
E.	Volume of Waste Release					
	(No Dilution)	Liters	1.05E+07	±1.0E+01	2.01E+07	±1.0E+01
F.	Volume of Dilution Water for Period	Liters	1.85E+08	±1.0E+01	1.97E+08	±1.0E+01

NOTE: Percent of applicable limit is based on identified isotope concentration after dilution, related to their appropriate MPC concentration and sum of all the isotope fractions compared to 1.0.

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

BATCH LIQUID RELEASES

CONDENSATE REGENERANTS

SECOND HALF 1983

G. Isotope Summary	Curies	Third Quarter	Fourth Quarter
1. Strontium-89		0.00E-01	2.29E-03
2. Strontium-90		0.00E-01	0.00E-01
3. Cesium-134		1.36E-03	4.63E-02
4. Cesium-137		1.64E-03	5.34E-02
5. Iodine-131		9.06E-04	0.00E-01
6. Cobalt-58		2.74E-02	2.90E-02
7. Cobalt-60		4.78E-03	4.01E-03
8. Iron-59		1.76E-03	4.49E-04
9. Zinc-65		0.00E-01	0.00E-01
10. Manganese-54		1.53E-03	7.14E-03
11. Chromium-51		3.36E-03	9.95E-03
12. Zirconium-Niobium-95		7.41E-04	8.13E-04
13. Molybdenum-99		0.00E-01	0.00E-01
14. Technetium-99m		0.00E-01	0.00E-01
15. Barium-Lanthanum-140		0.00E-01	0.00E-01
16. Cerium-141		0.00E-01	4.95E-06
17. Sodium-24		0.00E-01	0.00E-01
18. Fluorine-18		0.00E-01	0.00E-01
Total for Period		4.35E-02	1.53E-01

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

BATCH LIQUID RELEASES

CONDENSATE REGENERANTS

SECOND HALF 1983

G. Isotope Summary		Curies	Third Quarter	Fourth Quarter
Others (Not Required for Reg. Guide 1.21)				
1.	Xenon-133		1.61E-04	0.00E-01
2.	Xenon-135		0.00E-01	0.00E-01
3.	Iodine-133		2.75E-06	0.00E-01
4.	Cesium-136		0.00E-01	0.00E-01
5.	Xenon-131m		0.00E-01	0.00E-01
6.	Krypton-85m		0.00E-01	0.00E-01
7.	Antimony-124		0.00E-01	0.00E-01
8.	Argon-41		0.00E-01	0.00E-01
9.	Zirconium-97		1.39E-03	1.56E-03
10.	Arsenic-74		0.00E-01	0.00E-01
11.	Phosphorus-32		0.00E-01	0.00E-01
12.	Iron-55		7.48E-03	5.05E-02
	Others (Specify) Niobium-97		1.04E-10	0.00E-01
	Cobalt-57		9.22E-06	0.00E-01
	Total for Period		9.043-03	5.21E-02

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

CONTINUOUS LIQUID RELEASES

TURBINE BUILDING SUMP

SECOND HALF 1983

		Unit	Third Quarter	Total % Error	Fourth Quarter	Total % Error
A.	Fission and Activation Products					
	1. Total Releases	Curies	2.22E-02	±1.0E+01	6.04E-02	±1.0E+01
	2. Average Diluted Conc. During Period of All Identified Isotopes	µCi/ml	4.29E-08		1.08E-07	
	3. Percent of Applicable Limit ($\sum_{i=1}^{N}$ MPC ≤ 1)	%	5.38E-02		5.04E-01	
	NOTE: Percent of applicable limit is based on identified isotope concentration after dilution, related to their appropriate MPC concentration and sum of all the isotope fractions compared to 1.0.					
B.	Tritium					
	1. Total Release	Curies	1.91E+01	±1.0E+01	2.07E+00	1.0E+01
	2. Average Diluted Conc. During Period	µCi/ml	3.69E-05		3.72E-06	
	3. Percent of Applicable Limit (3.0E-03 µCi/ml)	%	1.23E+00		1.24E-01	
C.	Dissolved and Entrained Gases					
	1. Total Release	Curies	0.00E-01	±1.5E+01	4.16E-03	±1.5E+01
	2. Average Diluted Conc. During Period	µCi/ml	0.00E-01		7.47E-09	
	3. Percent of Applicable Limit (2.0E-04 µCi/ml)	%	0.00E-01		3.73E-03	
D.	Gross Alpha Radioactivity					
	1. Total Release	Curies	0.00E-01	±1.5E+01	0.00E-01	±1.5E+01
E.	Volume of Waste Release					
	(No Dilution)	Liters	5.17E+08	±1.0E+01	5.57E+08	±1.0E+01

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

CONTINUOUS LIQUID RELEASES

TURBINE BUILDING SUMP

SECOND HALF 1983

G.	Isotope Summary	Curies	Third Quarter	Fourth Quarter
1.	Strontium-89		0.00E-01	0.00E-01
2.	Strontium-90		0.00E-01	0.00E-01
3.	Cesium-134		0.00E-01	1.46E-02
4.	Cesium-137		8.21E-04	1.75E-02
5.	Iodine-131		0.00E-01	0.00E-01
6.	Cobalt-58		2.09E-02	2.28E-02
7.	Cobalt-60		0.00E-01	0.00E-01
8.	Iron-59		0.00E-01	0.00E-01
9.	Zinc-65		0.00E-01	0.00E-01
10.	Manganese-54		5.02E-04	4.61E-03
11.	Chromium-51		0.00E-01	0.00E-01
12.	Zirconium-Niobium-95		0.00E-01	8.51E-04
13.	Molybdenum-99		0.00E-01	0.00E-01
14.	Technetium-99m		0.00E-01	0.00E-01
15.	Barium-Lanthanum-140		0.00E-01	0.00E-01
16.	Cerium-141		0.00E-01	0.00E-01
17.	Sodium-24		0.00E-01	0.00E-0
18.	Fluorine-18		0.00E-01	0.00E-01
	Total for Period		2.22E-02	6.04E-02

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

CONTINUOUS LIQUID RELEASES

TURBINE BUILDING SUMP

SECOND HALF 1983

G.	Isotope Summary	Curies	Third Quarter	Fourth Quarter
	Others (Not Required for Reg. Guide 1.21)			
	1. Xenon-133		0.00E-01	3.53E-03
	2. Xenon-135		0.00E-01	6.28E-04
	3. Iodine-133		0.00E-01	0.00E-01
	4. Cesium-136		0.00E-01	0.00E-01
	5. Xenon-131m		0.00E-01	0.00E-01
	6. Krypton-85m		0.00E-01	0.00E-01
	7. Antimony-124		0.00E-01	0.00E-01
	8. Argon-41		0.00E-01	0.00E-01
	9. Zirconium-97		0.00E-01	0.00E-01
	10. Arsenic-74		0.00E-01	0.00E-01
	11. Phosphorus-32		0.00E-01	0.00E-01
	12. Iron-55		0.00E-01	0.00E-01
	Total for Period		0.00E-01	4.16E-03

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

BATCH LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

STEAM GENERATOR BLOWDOWN (TO COOLING TOWER BLOWDOWN)

SECOND HALF 1983

		Unit	Third Quarter	Total % Error	Fourth Quarter	Total % Error
A.	Fission and Activation Products					
1.	Total Releases	Curies	1.87E-03	±1.0E+01	2.94E-03	±1.0E+01
2.	Average Diluted Conc. During Period of All Identified Isotopes	µCi/ml	5.20E-08		1.78E-07	
3.	Percent of Applicable Limit ($\sum_{i=1}^{N}$ MPC $\leq$ 1)	%	1.00E-01		3.66E-01	
	NOTE: Percent of applicable limit is based on identified isotope concentration after dilution, related to their appropriate MPC concentration and sum of all the isotope fractions compared to 1.0.					
B.	Tritium					
1.	Total Release	Curies	5.52E-03	±1.0E+01	1.33E-02	1.0E+01
2.	Average Diluted Conc. During Period	µCi/ml	1.54E-07		8.05E-07	
3.	Percent of Applicable Limit (3.0E-03 µCi/ml)	%	5.12E-03		2.68E-02	
C.	Dissolved and Entrained Gases					
1.	Total Release	Curies	0.00E-01	±1.5E+01	0.00E-01	±1.5E+01
2.	Average Diluted Conc. During Period	µCi/ml	0.00E-01		0.00E-01	
3.	Percent of Applicable Limit (2.0E-04 µCi/ml)	%	0.00E-01		0.00E-01	
D.	Gross Alpha Radioactivity					
1.	Total Release	Curies	0.00E-01	±1.5E+01	0.00E-01	±1.5E+01
E.	Volume of Waste Release					
	(Before Dilution)	Liters	1.26E+06	±1.0E+01	5.33E+06	±1.0E+01
F.	Volume of Dilution Water for Period	Liters	3.47E+07	±1.0E+01	1.12E+07	±1.0E+01

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

BATCH LIQUID RELEASES

STEAM GENERATOR BLOWDOWN

SECOND HALF 1983

G.	Isotope Summary	Curies	Third Quarter	Fourth Quarter
1.	Strontium-89		0.00E-01	0.00E-01
2.	Strontium-90		0.00E-01	0.00E-01
3.	Cesium-134		1.58E-04	1.83E-04
4.	Cesium-137		1.39E-04	2.58E-04
5.	Iodine-131		0.00E-01	0.00E-01
6.	Cobalt-58		7.44E-04	1.77E-03
7.	Cobalt-60		4.28E-05	1.15E-05
8.	Iron-59		0.00E-01	0.00E-01
9.	Zinc-65		0.00E-01	0.00E-01
10.	Manganese-54		9.61E-05	7.16E-04
11.	Chromium-51		0.00E-01	0.00E-01
12.	Zirconium-Niobium-95		0.00E-01	0.00E-01
13.	Molybdenum-99		0.00E-01	0.00E-01
14.	Technetium-99m		0.00E-01	0.00E-01
15.	Barium-Lanthanum-140		0.00E-01	0.00E-01
16.	Cerium-141		0.00E-01	0.00E-01
17.	Sodium-24		0.00E-01	0.00E-01
18.	Fluorine-18		0.00E-01	0.00E-01
	Total for Period		1.18E-03	2.94E-03

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

BATCH LIQUID RELEASES

STEAM GENERATOR BLOWDOWN

SECOND HALF 1983

G.	Isotope Summary	Curies	Third Quarter	Fourth Quarter
	Others (Not Required for Reg. Guide 1.21)			
1.	Xenon-133		0.00E-01	0.00E-01
2.	Xenon-135		0.00E-01	0.00E-01
3.	Iodine-133		0.00E-01	0.00E-01
4.	Cesium-136		0.00E-01	0.00E-01
5.	Xenon-131m		0.00E-01	0.00E-01
6.	Krypton-85m		0.00E-01	0.00E-01
7.	Antimony-124		0.00E-01	0.00E-01
8.	Argon-41		0.00E-01	0.00E-01
9.	Zirconium-97		0.00E-01	0.00E-01
10.	Arsenic-74		0.00E-01	0.00E-01
11.	Phosphorus-32		0.00E-01	0.00E-01
12.	Iron-55		6.90E-04	0.00E-01
	Total for Period		6.90E-04	0.00E-01

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

(GROUND LEVEL RELEASES)

SECOND HALF 1983

Summation of All Releases		Unit	Third Quarter	Total % Error	Fourth Quarter	Total % Error
A.	Fission and Activation Products					
1.	Total Releases	Ci	1.02E+03	±1.0E+01	1.12E+03	±1.0E+01
2.	Average Release Rate for Period	µCi/ml	1.28E+02		1.41E+02	
3.	Percent of Technical Specification Limit	%	4.56E-02		4.96E-02	
B.	Iodines					
1.	Total Iodine-131	Ci	1.59E-04	±1.0E+01	2.61E-04	±1.0E+01
2.	Average Release Rate for Period	µCi/sec	2.00E-05		3.28E-05	
3.	Percent of Technical Specification Limit (7.80E-02 µCi/sec)	%	2.56E-02		4.21E-02	
C.	Particulates					
1.	Particulates with half-lives >8 Days	Ci	9.14E-04	±1.5E+01	6.64E-05	±1.5E+01
2.	Average Release Rate for Period	µCi/ml	1.15E-04		8.35E-06	
3.	Percent of Technical Specification Limit	%	2.76E-03		1.74E-05	
4.	Gross Alpha Radioactivity	Ci	0.00E-01		0.00E-01	
D.	Tritium					
1.	Total Release	Ci	5.05E+02	±1.0E+01	8.02E+01	±1.0E+01
2.	Average Release Rate for Period	µCi/sec	6.35E+01		1.01E+01	
3.	Percent of Technical Specification Limit (3.60E+04 µCi/sec)	%	1.76E-01		2.80E-02	

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

GASEOUS EFFLUENTS GROUND LEVEL RELEASE

SECOND HALF 1983

		Unit	Third Quarter	Fourth Quarter
1.	Fission Gases			
	Krypton-85	Ci	6.54E+00	1.57E+00
	Krypton-85m	Ci	1.03E+00	9.76E-01
	Krypton-87	Ci	8.18E-01	9.00E-03
	Krypton-88	Ci	1.01E+00	3.38E-01
	Xenon-133	Ci	9.79E+02	1.08E+03
	Xenon-135	Ci	1.38E+01	2.37E+01
	Xenon-135m	Ci	1.15E+00	0.00E-01
	Xenon-138	Ci	0.00E-01	0.00E-01
	Xenon-133m	Ci	9.50E+00	1.66E+01
	Xenon-131m	Ci	3.78E+00	1.38E+00
	Argon-41	Ci	5.87E-01	0.00E-01
	Total for Period		1.02E+03	1.12E+03
2.	Iodines			
	Iodine-131	Ci	1.59E-04	2.61E-04
	Iodine-133	Ci	9.99E-06	3.77E-06
	Iodine-135	Ci	1.33E-06	0.00E-01
	Total for Period		1.70E-04	2.65E-04

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

GASEOUS EFFLUENTS GROUND LEVEL RELEASE

SECOND HALF 1983

3. Particulates	Unit	Third Quarter	Fourth Quarter
Strontium-89	Ci	7.30E-04	0.00E-01
Strontium-90	Ci	0.00E-01	0.00E-01
Cesium-134	Ci	0.00E-01	0.00E-01
Cesium-137	Ci	4.97E-10	0.00E-01
Barium-140	Ci	0.00E-01	0.00E-01
Zirconium-95	Ci	0.00E-01	0.00E-01
Niobium-95	Ci	2.56E-06	0.00E-01
Cobalt-58	Ci	1.22E-04	6.64E-05
Manganese-54	Ci	9.15E-06	0.00E-01
Zinc-65	Ci	0.00E-01	0.00E-01
Iron-59	Ci	0.00E-01	0.00E-01
Cobalt-60	Ci	4.10E-06	0.00E-01
Others (Specify) Chromium-51	Ci	4.59E-05	0.00E-01
Yttrium-91	Ci	6.21E-07	0.00E-01
Total for Period	Ci	9.14E-04	6.64E-05

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

SOLID WASTE (RADIOACTIVE) SHIPMENTS

SECOND HALF 1983

A. Solid Waste Shipped Off-Site for Burial or Disposal (Not Irradiated Fuel)

1. Type of Waste	Unit	6 Month Period	Est.Total % Error		
a. Spent resins, filter sludges, evaporator bottoms, etc.	m^3	4.404E+01	N/A		N/A
	Ci	1.268E+03	1.000E-01		
b. Dry Active Waste Compressible Waste	m^3	1.278E+04	N/A		N/A
Contaminated equip., etc.	Ci	2.347E+01	2.000E-01		
c. Irradiated Components, Control Rods, etc.	m^3	None		None	
	Ci	None	N/A	None	N/A
d. Other (Describe)	m^3	None		None	
	Ci	None	N/A	None	N/A

2. Estimate of Major Nuclide Composition (by Type of Waste)

a. Spent resins, filter sludges, and evaporator bottoms, etc. (nuclides determined by measurement)

	Curies	Percent
1. Chromium-51	2.764E-01	2.178E-00
2. Manganese-54	8.036E+01	6.334E+00
3. Cobalt-58	9.044E+02	7.128E+01
4. Iron-59	7.035E-00	5.545E-01
5. Cobalt-60	1.463E+02	1.153E+01
6. Strontium-90	0.000E-01	0.000E-01
7. Zirconium-95	6.739E-00	5.311E-01
8. Niobium-95	1.076E+01	8.481E-01
9. Iodine-131	2.142E+01	1.688E-00
10. Cesium-134	2.540E+01	2.002E+00
11. Cesium-137	3.556E+01	2.803E+00
12. Other Nuclides	3.177E+00	2.504E-01

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

SOLID WASTE (RADIOACTIVE) SHIPMENTS

SECOND HALF 1983

2. Estimate of Major Nuclide Composition (by Type of Waste) (Cont.)

b. Dry Active Waste, Dry Compressible Waste, contaminated equipment, etc.;

	Curies	Percent
1. Chromium-51	1.139E+00	4.854E+00
2. Manganese-54	1.542E+00	6.572E+00
3. Cobalt-58	1.622E+01	6.913E+01
4. Iron-59	3.643E-01	1.553E-00
5. Cobalt-60	2.283E+00	9.730E-00
6. Strontium-90	0.000E-01	0.000E-01
7. Zirconium-95	1.019E-01	4.343E-01
8. Niobium-95	3.048E-01	1.299E-00
9. Iodine-131	7.871E-01	3.355E-00
10. Cesium-134	2.909E-01	1.240E-00
11. Cesium-137	4.073E-01	1.736E-00
12. Other Nuclides	2.362E-02	1.007E-01
c. Irradiated Components	N/A	N/A
d. Other (describe)	N/A	N/A

EFFLUENT AND WASTE DISPOSAL SEMIANNUAL REPORT

SOLID WASTE (RADIOACTIVE) SHIPMENTS

SECOND HALF 1983

3. Solid Waste Disposition

a) Resin, filter sludges, evaporator bottoms, etc.

Number of Shipments	Type Quantity	Mode of Transportation	Destination
9	LSA	Highway Carrier	Chem. Nuclear Systems Inc., Barnwell, SC.

b) Daw, dry active waste, compressible contaminated equipment, etc.

Number of Shipments	Type Quantity	Mode of Transportation	Destination
1	LSA	Highway Carrier	Chem-Nuclear Systems Inc., Barnwell, SC
7	LSA	Highway Carrier	U.S. Ecology Inc. Richland, WA

c) Irradiated components, control rods, etc.

Number of Shipments	Type Quantity	Mode of Transportation	Destination
None	N/A	N/A	N/A

d) Other (describe)

Number of Shipments	Type Quantity	Mode of Transportation	Destination
None	N/A	N/A	N/A

4. Irradiated Fuel Shipments (Disposition)

Number of Shipments	Type Quantity	Mode of Transportation	Destination
None	N/A	N/A	N/A

5. Solidifcation of Waste

Was solidification performed? X Yes _____ No

If yes, solidification media: Cement.

TENNESSEE VALLEY AUTHORITY

Sequoyah Nuclear Plant
P. O. Box 2000
Soddy-Daisy, Tennessee 37379

FEB 29 1984

50-327/H

U. S. Nuclear Regulatory Commission
Region II
Attn: Mr. J. P. O'Reilly
Regional Administrator
101 Marietta Street, Suite 2900
Atlanta, Georgia 30303

Dear Sir:

In accordance with Sequoyah Nuclear Plant Technical Specification 6.9.1.9 for units 1 and 2, we are submitting the enclosed report of the radioactive discharges released from Sequoyah during the period of July 31, 1983 through December 31, 1983.

The corresponding report on the "Radiological Impact on Man" is prepared by TVA's Radiological Health Staff and submitted by Nuclear Licensing Staff.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

C. C. Mason
Power Plant Superintendent

Enclosure
cc (Enclosure):
Environmental Protection Agency
Region IV
Facilities Performance Branch
Water Mgt Division
345 Courtland Street NE
Atlanta, GA 30365

Tenn Div of Water Quality Control
150 Ninth Ave., N.
TERRA Bldg
Nashville, TN 37203

Tenn Div of Water Quality Control
Environmental Health Services
2501 Milne Street
Chattanooga, TN 37406

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